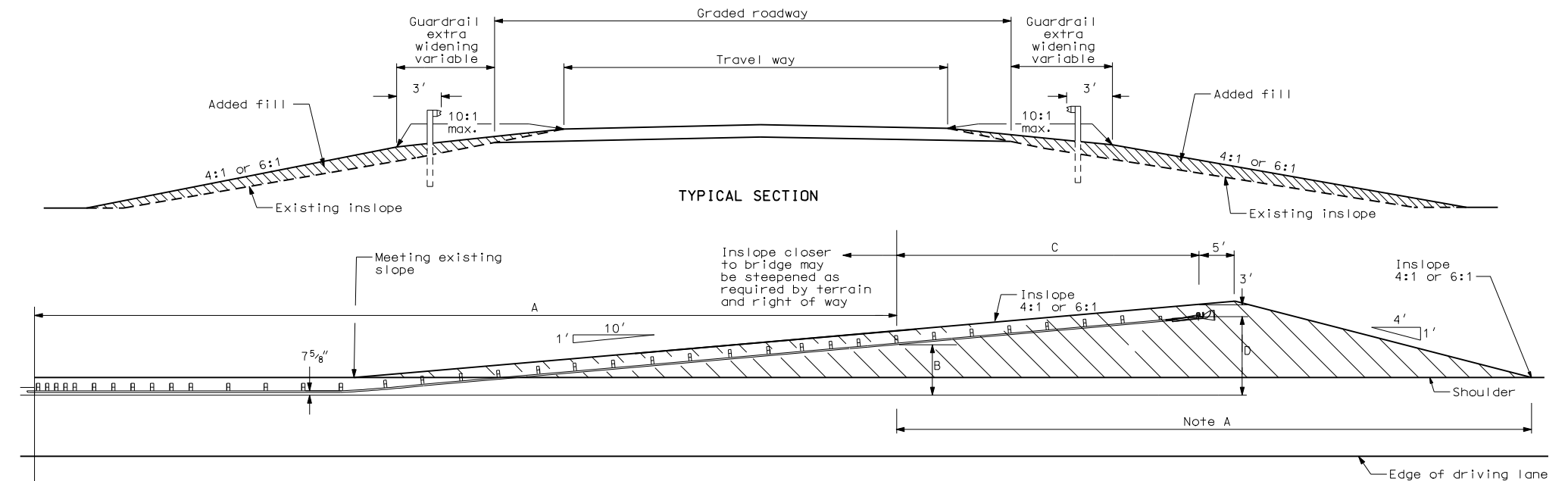


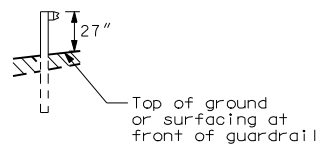
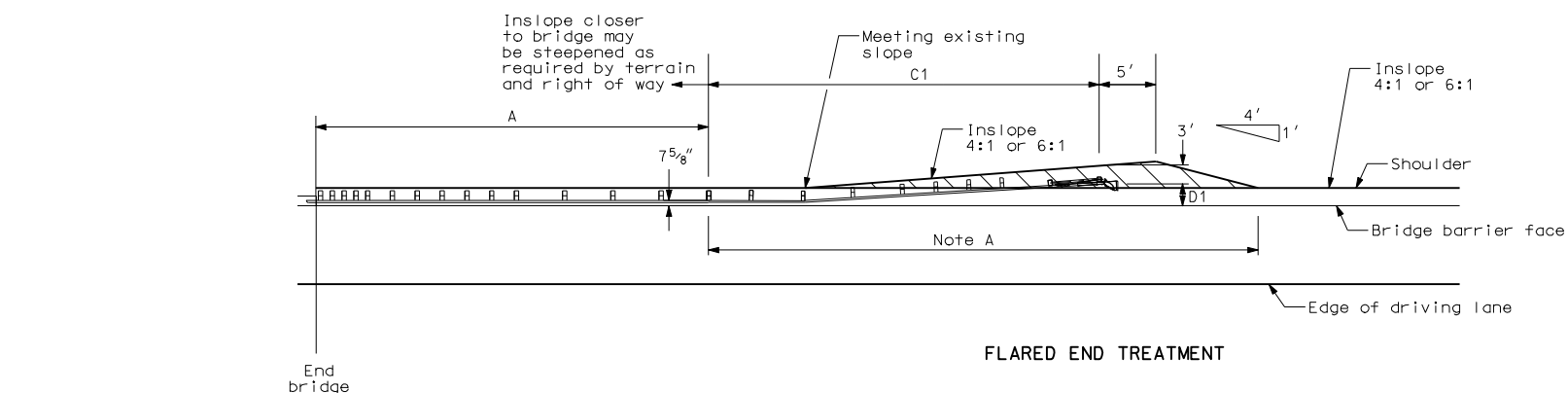
| W-BEAM DIMENSION TABLE | | | | | | | | | | | | |
|-----------------------------|---------------------------|-------------------------------|-----|--------------------------|------|----------------------|-------------------------------|-----|--------------------------|-----|----------------------|--|
| APPROACH SIDE | | | | | | | OPPOSITE SIDE | | | | | |
| DESIGN TRAFFIC VOLUME (ADT) | CLEAR ROW-WIDTH OF BRIDGE | STRAIGHT AND FLARED GUARDRAIL | | END TREATMENT NON-FLARED | | END TREATMENT FLARED | STRAIGHT AND FLARED GUARDRAIL | | END TREATMENT NON-FLARED | | END TREATMENT FLARED | |
| | | A | B | C | D | C1 D1 | A | B | C | D | C1 D1 | |
| | | FT. | FT. | FT. | FT. | FT. FT. | FT. | FT. | FT. | FT. | FT. FT. | |
| UNDER 250 | 44 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 42 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 40 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 38 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 36 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 34 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 32 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 30 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 28 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 26 | 63.1 | 1.3 | 49.8 | 6.2 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 24 | 63.1 | 1.3 | 49.8 | 6.2 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| 800-250 | 44 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 42 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 40 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 38 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 36 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 34 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 32 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 30 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 28 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 26 | 63.1 | 1.3 | 49.8 | 6.2 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 24 | 75.6 | 2.5 | 49.8 | 7.5 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| 2000-800 | 44 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 42 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 40 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 38 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 36 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 34 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 32 | 63.1 | 1.3 | 49.8 | 6.2 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 30 | 63.1 | 1.3 | 49.8 | 6.2 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 28 | 75.6 | 2.5 | 49.8 | 7.5 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 26 | 75.6 | 2.5 | 49.8 | 7.5 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 24 | 75.6 | 2.5 | 49.8 | 7.5 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| 6000-2000 | 44 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 42 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 40 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 38 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 36 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 34 | 63.1 | 1.3 | 49.8 | 6.2 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 32 | 63.1 | 1.3 | 49.8 | 6.2 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 30 | 75.6 | 2.5 | 49.8 | 7.5 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 28 | 75.6 | 2.5 | 49.8 | 7.5 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 26 | 87.5 | 3.7 | 49.8 | 8.7 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 24 | 87.5 | 3.7 | 49.8 | 8.7 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| OVER 6000 | 44 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 42 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 40 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 38 | 63.1 | 1.3 | 49.8 | 6.2 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 36 | 63.1 | 1.3 | 49.8 | 6.2 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 34 | 75.6 | 2.5 | 49.8 | 7.5 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 32 | 75.6 | 2.5 | 49.8 | 7.5 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 30 | 87.5 | 3.7 | 49.8 | 8.7 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 28 | 87.5 | 3.7 | 49.8 | 8.7 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 26 | 100.4 | 5.0 | 49.8 | 10.0 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |
| | 24 | 100.4 | 5.0 | 49.8 | 10.0 | | 50.7 | 0.6 | 50.0 | 0.6 | 49.8 4.6 | |

TYPICAL GRADING AT BRIDGE ENDS

WITH
FLARED W-BEAM GUARDRAIL
45 MPH DESIGN SPEED



PLAN LAYOUT
NON-FLARED END TREATMENT



GUARDRAIL HEIGHT

Note:

The design traffic volumes (ADT) shall be as shown on title sheet under traffic forecast.

Where normal inslope is 4:1, the added fill shall be 4:1.

Where normal inslope is 6:1, the added fill shall be 6:1.

Note A: This area may have to be placed at flatter than 10:1 to provide the proper guardrail height.

| NORTH DAKOTA DEPARTMENT OF TRANSPORTATION | |
|--|-----------------------------|
| 09-01-98 | |
| REVISIONS | |
| DATE | CHANGE |
| 10-29-98 | Offset dimensions |
| 12-21-00 | Revise flared end treatment |
| 12-18-02 | Revised table |
| 12-17-03 | Revised flared rate detail |
| 12-01-04 | PE Stamp added |

This document was originally issued and sealed by MARK S GAYDOS, Registration Number PE-4518, on 12/01/04 and the original document is stored at the North Dakota Department of Transportation